

United States Department of Agriculture
Research, Education, and Economics

ARS □ CSREES □ ERS □ NASS

Policies and Procedures

Title: Procedures for Publishing in Non-USDA Media (Outside Publishing)

Number: 152.1-ARS

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Originating Office: Office of National Programs, ARS

This Replaces: 152.1-ARS dated 4/22/2013

Distribution: ARS Headquarters, Areas, Locations, and all Scientists

This P&P:

- Establishes clearance procedures for manuscripts prepared for presentation and/or publication in non-USDA publications;
- Describes responsibilities of ARS personnel directly involved in preparing, reviewing, and clearing manuscripts for presentation and/or publication in non-USDA publications; and
- States policies for non-USDA publication regarding assessed page charges; purchase of reprints, separate covers, and books containing ARS-authored material; distribution of reprints and books; and submittal to NAL Digital Repository.
- Establishes policies for submittal to the NAL Digital Repository.

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1. Introduction and Statement of Policy

Documentation of scientific results and objective interpretations of their significance and applicability to the public are among the major products of ARS research. Publication in non-USDA media is a primary form of this documentation and an essential means for communicating ARS research to other scientists and to ARS customers, partners, and stakeholders. All who participate in the preparation and review of a manuscript for publication have a responsibility to contribute to the objective and effective communication of ARS research findings. The quality and utility of ARS publications reflect on the authors as well as the Agency as a whole.

For purposes of this Policies and Procedures for Publishing (P&P) in Non-USDA Media:

- “manuscript” means the pre-publication stage of any information intended for presentation, such as oral or poster presentation, and/or publication, including abstracts, such as in a refereed journal, book chapter, proceedings, popular journal, hard copy or electronic;
- “publishing” refers to the public presentation of scientific or technical information, orally, in print or electronically; and
- “publication” refers to published information either in print or electronic form.

This P&P outlines the responsibilities of the ARS author, Research Leader (RL), and other ARS officials for publishing in Non-USDA Media.

Changes from the previous version of the P&P include:

- Modification to the approval process for publications marked as Prominent Issue;
- Removal of DUR (Dual Use Research) policy when publishing;
- Addition of DURC (Dual Use Research of Concern) policy when publishing;
- Addition of policy on outside activity; and
- Addition of policy for RL/CD authorship;

2. Authorities

Title 18 U.S.C. 203 and 209

Title 44 U.S.C.

Joint Committee on Printing, Congress of the United States, Government Printing and Binding Regulations

OMB Circular A-130

Departmental Regulations 1410-1

3. Manuscripts: Preparation, Review, and Clearance

ARS Author

The ARS author is responsible for the following:

(**Note:** The first ARS author in the list of authors serves as lead for all clearance and approval processes, including the entry of the ARS-115.)

Prior to Presentation or Submission to Journal/Publisher:

- Reviews and ensures adherence to authorship criteria established in REE P&P 152.2, “Authorship of Research and Technical Reports and Publications.”
- Ensures technical accuracy and quality of the manuscript.
- Ensures manuscript format and style meet the requirements of the publisher.
- Ensures technical accuracy of oral and/or poster presentations.
- When proprietary or brand names are used, adds the following disclaimer to the manuscript:

“Mention of trade names or commercial products in this publication is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the U.S. Department of Agriculture.”

Note: Caution should be taken in using trade names or commercial products in all abstracts and interpretive summaries, which are posted to the ARS website.

- Ensures that all publications going to an audience outside USDA carries the EEO/Non-Discrimination Statement:

“The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Note: If product is small and cannot accommodate full version, short version of EEO Statement is acceptable:

“USDA is an equal opportunity provider and employer”

- Ensures author’s institutional affiliation appears on the publication, preferably the title page in the following recommended format. In instances where an author has a joint appointment, the names of the institutions should be separated by comma, “and”, semicolon, with ARS being listed as the first affiliation.

“USDA, Agricultural Research Service, research facility, subunit (if applicable), street address, city, state-postal abbreviation, zipcode, USA”

- Ensures that manuscript is cleared by coauthor(s) and cooperating institution(s), if applicable.
- Ensures that the ARS-115 properly identifies manuscripts reporting research results from a Cooperative Research and Development Agreement (CRADA).
- Informs Research Leader (RL) of manuscripts from projects coded as dual use research of concern (DURC) and ensures that manuscript receives Area Director (AD) and Office of National Programs (ONP) approval before submittal for publication.
- Discusses manuscript with RL and informs RL of prominent issues related to the manuscript, and makes any necessary revisions.
- Consults with RL regarding manuscript peer review requirements. The RL determines the level of review before submission of a manuscript to a refereed journal or other publisher. If required, obtains documented reviews from qualified peer(s) with knowledge and familiarity in the field of research. Form ARS-533 or any other RL-approved process that results in an acceptable review may be used.
- Determines if manuscript content should be reviewed by the Patent Advisor (PA) in OTT for protection of IP.
- When manuscript is ready for submission for publication or presentation, submits to RL the following items:
 - Information needed for preparation and entry into Agricultural Research Information System (ARIS) via the ARS-115, “Request to Submit Manuscript for Publication;”
 - Revised manuscript; and
 - Any required peer reviews.

NOTE: Manuscripts that are the first formal report of original scientific research require an interpretive summary for inclusion in the ARS-115, prepared in accordance with guidelines in Exhibit 2.

- Revises abstract and/or interpretive summary for ARS-115, if necessary based on RL review.
- **Prior to the submission of a manuscript for publication or presentation**, enters the ARS-115 into ARIS and obtains all approvals, including Area and ONP for DURC and Prominent Issue publications(see Section 4). **NOTE:** Only the first ARS author in the list of authors enters the ARS-115 and subsequently notifies any other ARS authors of the approved ARS-115.
- Submits manuscript to proposed publisher within 30 days of approved ARS-115.
- When applicable, prepares and submits a new ARS-115 when patent application has been assigned a serial number by the U.S. Patent and Trademark Office (USPTO).

After Submission for Publication:

- Enters dates on the ARS-115 once manuscript is submitted and accepted for publication. (Manuscripts returned from the publisher and not resubmitted for publication should be noted in the Comments section on the ARS-115 and marked as “never to be published”.)
- If manuscript is rejected by a publisher because of technical or other deficiencies, ensures concerns are corrected and reviewed and revised as necessary before resubmittal or submission to another publisher. If sent to another publisher, the original ARS-115 must be modified to enter new journal name, date submitted to journal, and mark as “previously submitted”. Note: A new ARS-115 should **NOT** be created.
- Updates ARIS with Publication Date and Citation once manuscript is published (refer to ARIS Online Handbook for additional citation information).
- For all peer-reviewed journal articles (ARIS Form-115, Publication Type=Peer Review Journal) published in scholarly journals, electronic versions of the final peer-reviewed manuscripts (either in a PDF file format or other standard file format) must be submitted within three months following publication date to the National Agricultural Library Digital Collections (NALDC). The “DOI Express Submission” form is located at http://submit.nal.usda.gov/submitform/doi_search. The “Classic Submission” form is located at <http://submit.nal.usda.gov/node/add/submitmission>. Every article submitted to NALDC, will be publicly accessible through a permanent URL no later than 12 months following publication date. Links to articles also will be incorporated into AGRICOLA and PubAg databases.

- Enters the URL for the reprint in the “Repository URL” field on the ARS-115 once received via e-mail from the NAL Digital Repository.
- Maintains a digital archive of all manuscripts for one year after they are published.
- To facilitate ARS compliance with OMB Circular A-130, Requirements of the National Information Infrastructure, the additions to the Freedom of Information Act known as E-FOIA, and the requirements of the Americans with Disabilities Act, the author refers requests for digital publication copies to NAL’s digital repository of all published manuscripts. Upon receipt of such requests, NAL will create a copy on demand in response to the requestor.

Research Leader (RL) (or first line supervisor if RL or CD is Author)

The RL is responsible for the following:

- Ensures that scientists are adequately instructed about the need for writing and publishing the results of their research.
- Ensures proper preparation of manuscripts authored by unit scientists.
- Reviews submission of every manuscript authored by unit scientists, including own manuscripts.
- Confirms that requirements for authorship are met per REE P&P 152.2, “Authorship of Research and Technical Reports and Publications.”

Implements policy on manuscript clearance for non-USDA publications.

- Provides ARS approval of the content and quality of a manuscript resulting from research before submission for publication and resolves problems with author(s) on content or quality of manuscript.
- Discusses with author and determines the level of review required before manuscript is submitted for approval via the ARS-115.
- Informs Center Director (CD)/ Institute Director (ID)/Laboratory Director (LD) and AD of manuscripts from projects coded as DURC and ensures that these manuscripts receive AD and ONP approval before submittal for publication.
- Identifies and informs CD/ID/LD and AD of any prominent issues related to the manuscript and ensures that the manuscript receives AD and ONP approval before submittal for publication (see Section 4).

- Verifies that quality peer reviews were made, if required, and that reviewer(s) comments have been adequately addressed by the author(s) and used to ensure scientific and technical soundness of the manuscript.
- Reviews manuscript before author submits to publisher to determine that it is in the best form possible to enhance communication of the research results.
- Resolves problems with author(s) on abstract of manuscript and/or interpretive summary, if required, on the ARS-115.
- Requests assistance from line management and/or ONP in resolving manuscript issues.
- Ensures that ARS author has cleared manuscript by coauthor(s) and cooperating institution(s), if applicable.
- Ensures that the ARS-115 is entered into ARIS **prior** to submission to the journal and that manuscripts providing the first formal report of original scientific research have an interpretive summary prepared in accordance with guidelines in Exhibit 2 for inclusion in the ARS-115.
- Reviews the ARS-115 and authorizes entry of RL signature approval on the ARS-115.
- Ensures manuscript progression and status are accurately reflected in ARIS as it moves through the publication process.
- If a manuscript is released or rejected by a publisher, consults with author to ensure concerns are addressed before it is resubmitted or sent to another publisher. Ensures that manuscripts returned from the publisher and not resubmitted for publication are noted in the Comments Section of the ARS-115 and marked as “never to be published.”

Center Director (CD), Institute Director (ID), Laboratory Director (LD)

The CD/ID/LD is responsible for the following:

- Addresses all responsibilities in RL responsibility section for publications authored by Research Leader(s).
- Implements policy on manuscript clearance for non-USDA publications.
- Provides assistance, when necessary, to RL, in resolving differences on manuscript issues.
- Ensures manuscripts from projects coded as DURC receive AD and ONP approval before submittal for publication.

- Informs Area Director of any prominent issues related to the manuscript and ensures that the manuscript receives AD and ONP approval before submittal for publication.
- Reviews and authorizes approval on the ARS-115 as applicable.

Area Director (AD)

The AD is responsible for the following:

- Addresses all responsibilities in RL responsibility section for publications authored by Research Leader(s) or Center Directors (if direct supervisor).
- Implements policy on manuscript clearance for non-USDA publications.
- Provides assistance, when necessary, to RL and/or CD/ID/LD in resolving differences on manuscript content or quality.
- Reviews and approves manuscripts from projects coded as DURC and forwards the ARS-115 and manuscript to ONP for review and approval before submittal to publisher.
- Discusses with ONP any ARS-115s designated as Prominent Issues that are of concern prior to approving and receives ONP approval.

Office of Technology Transfer (OTT)

OTT is responsible for the following, when applicable:

- Receives and reviews ARS-115s marked as related to a CRADA or having potential for intellectual property rights to determine whether protection of IP would be compromised by publication in TEKTRAN. If withholding is warranted, notifies appropriate Patent Advisor (PA) who consults with authors/inventors, and subsequently releases the ARS-115 to TEKTRAN at appropriate time when it has been determined that IP rights are not compromised.
- Notifies inventor when USPTO assigns a serial number, and instructs inventor to submit ARS-115 and identify serial number. PA updates ARIS Invention Disclosure Database with serial number.

Office of National Programs (ONP)

- Receives, reviews, and approves all ARS-115s coded as DURC and/or prominent issue.

- Ensures manuscripts marked as “Hold from TEKTRAN until Published” or “Hold from TEKTRAN Permanently” are not released for public access until appropriate time.

4. Prominent Issues

ARS scientific manuscripts often report research findings and interpretations related to topics that are prominently visible and of wide interest to the general public, agricultural, and/or scientific communities. Such topics can become prominent issues. However, not every manuscript on such topics may be a prominent issue.

There are five designations on the ARS-115 for Prominent Issues:

- Potential to Attract Media Attention
- Represents a Significant Scientific Advancement
- Significantly Affects Existing or Future USDA Policy
- Potential Trade Implications
- Other (description required)

If any of these designations are marked, the ARS-115 will be indicated as “Prominent Issue”. It is the responsibility of all management levels to indicate if the manuscript falls into any of these categories.

All scientific manuscripts dealing with such prominent issues are to be reviewed and approved through line and staff channels up to and through the Area Office and ONP. AD should discuss with ONP any ARS-115s designated as Prominent Issues that are of concern prior to approving. Note: The purpose and outcome of these reviews and approvals are to assure sound peer review and policy interpretation, advance alert to the Administrator’s and Secretary’s offices, and/or timely identification of scientific breakthroughs having special public news media value.

5. Books and Monographs: Preparation, Review, and Clearance

In most circumstances, it will be to the Agency's advantage and to the public's benefit for an ARS author to publish with a non-USDA publisher. Authors are encouraged to respond positively to invitations to publish with scientific and academic publishers of the highest quality.

Authors planning to prepare a book, monograph, or electronic publication related to their official work or related to an ongoing or announced policy, program, or USDA operation (regardless of whether the work is conducted on official or personal time) must first obtain a memo stating the approval of the RL, CD/ID/LD, if applicable, and AD. Note: Publications or other work performed that are not part of official ARS duties (“Outside Activity”) should be discussed with the USDA Office of Ethics-Science Ethics Branch (see Section 6 “Outside Activities” below). The memo should identify the publisher and describe the proposed general content of the

publication. The AD will forward an information copy of each approved proposal to the Information Staff (IS) Director. Review and clearance of material approved for outside publication of books, monographs, and electronic publications follow the same procedures as those for journal articles with one caveat: On rare occasions, at his or her discretion and in accordance with Departmental regulations, the IS Director may require that IS review the final manuscript. This review will be for policy concerns only, not for editorial matters or scientific content. It will be provided with a rapid turnaround appropriate to the manuscript's length and complexity.

Responsibilities:

ARS Author

- Obtains approval of RL, AD, and IS Director before preparing a book, monograph, or electronic publication for a non-USDA publisher during official duty time or during personal time when the subject matter is related to author's official duties.

RL

- Conveys approval to author for preparation of a book or monograph by a non-USDA publisher when prepared during official time and during off-duty time if the subject matter is related to the author's official duties.

CD/ID/LD

- Conveys approval for preparation of a book or monograph by a non-USDA publisher when prepared during official time and during off-duty time if the subject matter is related to the author's official duties.

AD

- Conveys approval for preparation of a book or monograph by a non-USDA publisher when prepared during official time and during off-duty time if the subject matter is related to the author's official duties.

6. Outside Activities

Publications or other work performed that are not part of official ARS duties ("outside activity") should be discussed with the appropriate line management and USDA Office of Ethics-Science Ethics Branch.

If the activity is acceptable, the following disclaimer must be included in the publication, preferable at the beginning of the article, near the person's name:

“The views reflected in this scholarly article are solely my own personal views, based upon publicly available data, and do not necessarily reflect the views of ARS, the Department of Agriculture, or the United States Government.”

An ARS-115 is not required for these outside activities.

7. Payment of Assessed Page Charges

ARS is generally authorized by the Department to pay assessed page charges (see Exhibit 3, “Authorization for Payment of Page Charges for Scientific and Technical Journals”). Page charge procurement requests are to be prepared in accordance with Area and research unit policy; approved requests are to be purchased in the most efficient manner.

8. Purchase of Reprints and Books from Outside Publishers

ARS is authorized to purchase reprints or electronic forms of manuscripts prepared by ARS employees in their official capacity and published, in print or electronically, in a scientific or technical journal or symposium proceedings or as a chapter in a book. Purchase is restricted to reprints that are necessary to ARS in carrying forward its projects or in answering correspondence. In line with routine publishing practices of many journals, purchase orders for reprints may be placed in advance of actual publication.

ARS is not authorized to use Federal funds to purchase covers for reprints.

ARS is authorized to purchase copies of books, symposium proceedings, and workshop reports containing material prepared by an ARS employee in his/her official capacity, but only in quantities sufficient for the use of the author(s) and other ARS entities (including the National Agricultural Library), not for further distribution.

ARS may not enter into agreements to purchase reprints from a scientific or technical journal as a condition of publication in the journal. Similarly, ARS may not agree to purchase books, symposium proceedings, etc., as a condition of publication.

ARS may enter into cooperative agreements with non-USDA entities that include as part of the agreement, but not its entire purpose, production and printing of a publication for distribution by the non-ARS partner. This includes cooperative research agreements and contracts for conducting a scientific symposium. As part of such agreements, ARS may contract to receive a specified number of copies of a publication for redistribution.

ARS is authorized to purchase separate reprints of a publication or copies of books prepared either by a Government employee who prepared the information outside his/her official capacity or by a private individual, provided that the article or book was:

- Already published when a determination or agreement to purchase copies was made.
- Prepared without any understanding, promise, or suggestion that such a purchase would be made.

Reprint or book procurement requests are to be prepared in accordance with Area and research unit policy; approved requests are to be purchased in the most efficient manner.

A reprint purchased by ARS may not be mailed or otherwise distributed “with author's compliments” at government expense. Or, if purchased by author, a reprint “with author’s compliments” may not be mailed or distributed at government expense.

9. Reproduction of Articles

ARS may reproduce final peer-reviewed manuscripts of any scientific or technical journal article prepared by an ARS employee in his/her official capacity and published in a periodical, scientific, or technical journal. Reproduction of manuscripts for research purposes may happen without delay. Public dissemination of such reproductions could be subject to a 12 month embargo period or as defined in the Policy on Public Access to Results of USDA-funded Scientific Research, once the policy is approved.

10. Copyright

Copyright protection under U.S. copyright law is not available for any work prepared by a Federal employee as part of his/her official duties. Therefore, neither ARS nor an ARS employee has a copyright in such a work, which may be freely reproduced by the public. In responding to a publisher’s request to transfer copyright, an ARS employee should return the **signed** form “Certification of Material as Public Domain Content” (Exhibit 4) to the publisher, which contains the following statement:

The article/chapter cited was prepared by a U.S. Department of Agriculture employee as part of his/her official duties. Copyright protection under U.S. Copyright Law Title 17 U.S.C. §105 is not available for such works. Accordingly, there is no copyright to transfer. The fact that the private publication in which the article appears is itself copyrighted does not affect the material of the U.S. Government, which can be freely reproduced by the public.

Note that even if such a copyright were to exist, an ARS employee cannot transfer copyright without having been authorized to do so.

11. Compensation for Articles and Other Publications

Articles and other publications prepared as part of a Federal employee's official duties are the property of the U.S. Government. Authors may not accept payment for official articles published in non-Government publications, be it royalty income or other forms of compensation. ARS employees may not designate, recommend, nor specify donation of compensation to a charitable organization. Compensation does not include copies of publications or similar articles that provide a record of the writing activity. ARS employees, on behalf of the agency, may accept a limited number of reprints or copies of the publication. Materials received should be distributed/maintained according to Agency procedures.

12. Glossary

AA. Associate Administrator.

Abstract. Brief technical description of an oral or poster presentation and potentially printed in a meeting announcement, proceedings, or program and not accompanied by full-length manuscript.

AD. Area Director.

ARIS. Agricultural Research Information System (Agency official research documentation system).

ARS Author. Principal ARS Scientist responsible for the technical accuracy and quality of the manuscript.

Article. A published manuscript that is part of a compilation of other published manuscripts, e.g., journal, book, proceedings.

Assessed page charges. Cost of processing, publishing, and distributing a research manuscript through an outside scientific or technical journal.

CD. Center Director.

DA. Deputy Administrator.

Department Regulations 1410-1. <http://www.ocio.usda.gov/document/departmental-regulation-1410-001>

Dual Use Research of Concern (DURC). Life sciences research that, based on current understanding, can be reasonably anticipated to provide knowledge, information, products, or technologies that could be directly misapplied to pose a significant threat with broad potential

consequences to public health and safety, agricultural crops and other plants, animals, the environment, material, or national security.

Electronic publications. Material distributed as a finished product in digital format, regardless of physical media, or storage or access service platform, is considered a publication if it would be considered a publication in print. Software and digital databases (including simulation models and expert systems) distributed as products with user and/or technical documentation or other user aids such as tutorials are regarded as publications. Online databases that are frequently updated are not publications.

Form ARS-115 (ARS-115). Request to Submit Manuscript for Publication (automated in ARIS). (see Exhibit 1)

Form ARS-533. Manuscript Peer Review (local reproduction) (available in E-Forms).

GPO. Government Publishing Office.

ID. Institute Director.

IP. Intellectual Property. Property that can be protected under federal law, including copyrightable works, ideas, discoveries, and inventions.

IS. Information Staff.

Interpretive summary. Brief explanation of the reason for, accomplishment of, and significance of the research in language intelligible to the general public.

Joint Committee on Printing, Congress of the United States, Government Printing and Binding Regulations. <http://www.gpo.gov/pdfs/customers/sfas/jcpregs.pdf>.

LD. Laboratory Director.

Manuscript. For purposes of this P&P, the pre-publication stage of a refereed journal article, book or book chapter, popular or trade journal article, proceedings, oral/poster presentation, or abstract, whether it is intended for print, electronic media, or oral presentation.

Monograph. A scholarly book on a single, usually limited subject.

Non-USDA publication. Print and electronic media not published by USDA or any of its agencies. Refers mainly to scientific and technical journals, proceedings, popular or trade journals, and academic and scientific books. Where USDA or any of its agencies is listed as a cooperating publisher, the publication is considered a USDA publication (see P&P 151.1, “Publishing [Print and Electronic]”). Procedures in P&P 151.1 apply to documents posted to the

web by ARS authors on ARS web sites, or at other sites in a context suggesting that ARS is the publisher.

OMB Circular A-130. http://www.whitehouse.gov/omb/circulars_a130_a130trans4/

ONP. Office of National Programs

Original scientific paper. A manuscript, other than an abstract, that is the first formal report of research results.

OTT. Office of Technology Transfer.

PA. Patent Advisor (in OTT).

Prominent Issue. ARS scientific manuscripts that report research findings and interpretations related to topics that are prominently visible and of wide interest to the general public, agricultural, and/or scientific communities.

Publication. An external document or manuscript prepared in finished form and reproduced in multiple copies, including materials disseminated or made available in print or electronic media.

Publishing. For purposes of this P&P, the first written publication and/or presentation of scientific or technical information, orally, in print, or electronic media.

RL. Research Leader.

Technical abstract. Brief technical description that accompanies a full-length manuscript; also used in published meeting programs and proceedings as a synopsis for presentations.

TEKTRAN. Technology Transfer Automated Retrieval System.

Title 18 U.S.C. 203 and 209

<https://www.gpo.gov/fdsys/pkg/USCODE-2009-title18/html/USCODE-2009-title18.htm>

Title 44 U.S. C.

<https://www.gpo.gov/fdsys/pkg/USCODE-2014-title44/html/USCODE-2014-title44.htm>

USDA Publication. Where USDA or any of its agencies is listed as cooperating publisher, the publication is considered a USDA Publication (see P&P151.1).

USPTO. U.S. Patent and Trademark Office.

/s/ STEVEN R. SHAFER

STEVEN R. SHAFER
Associate Administrator
Office of National Programs
Agricultural Research Service

Exhibit 1: ARS-115 "Request to Submit Manuscript for Publication"

10/15/10		Agricultural Research Information System Request to Submit Manuscript for Publication		
Project Number: 3645-12610-001-00D Modecode: 3645-05-00 MIDWEST AREA MORRIS, MINNESOTA SOIL MANAGEMENT RESEARCH Team Leader: CHARLES L WALTHALL	Log Number: 236528	Status: REVISION	Creation Date: 05/10/08	
Submitter: JARADAT ABDULLAH A Scientist to Contact: PAPIERNIK SHARON K		DA: STEVEN R SHAFER Telephone: 320-589-3411 Email: abdullah.jaradat@ars.usda.gov Email: sharon.papiernik@ars.usda.gov Telephone: 320-589-3411 Fax: 320-589-3787		
Manuscript has been: Peer Reviewed: NO (Attached All ARS-533s) Manuscript reports CRADA Research? NO First Formal Report Other than Abstract: YES				
Title of Manuscript: Variations in soil properties and herbicide sorption coefficients with depth in relation to PRZM (pesticide root zone model) calculations				
Journal or Equivalent: 01004 Geoderma Publication Type: PEER REVIEWED JOURNAL Date Submitted to Journal: 05/14/2008 Journal URL: Repository URL: hdl.handle.net/10113/29892 Publication Date: 03/25/2009 Hold from Tektran for OTT Review: Volume/Page: 150:267-277 Never to be Published: NO Citation: Farenhorst, A., McQueen, D.A., Saiyed, I., Hilderbrand, C., Li, S., Lobb, D.A., Messing, P., Schumacher, T.E., Papiernik, S.K., Lindstrom, M.J. 2009. Variations in soil properties and herbicide sorption coefficients with depth in relation to PRZM (pesticide root zone model) calculations. Geoderma. 150:267-277.				
Confidential Until Published: Acceptance Date: 02/03/2009 Previously Submitted: NO Hold from Tektran until Published: Hold from Tektran Permanently: Used on 421? NO				
Patent Information: Due to patent potential, is retention of intellectual property rights desired? If unknown, contact the Patent Advisor. NO				
Prominent Issues: <input checked="" type="checkbox"/> Potential to Attract Media Interest/Attention <input type="checkbox"/> Represents a Significant Scientific Advancement <input type="checkbox"/> Significantly affect Existing or Future USDA Policy <input type="checkbox"/> Potential Trade Implications <input type="checkbox"/> Other:				
Author(s) FARENHORST ANNEMIEKE MCQUEEN D A SAIYED IBRAHIM HILDERBRAND C LI SHENG LOBB DAVID A MESSING PAUL SCHUMACHER THOMAS E	Series 	Author Senior ship 1 2 3 4 5 6 7 8	Employer UNIVERSITY OF MANITOBA UNIVERSITY OF MANITOBA UNIVERSITY OF MANITOBA UNIVERSITY OF MANITOBA UNIVERSITY OF MANITOBA UNIVERSITY OF MANITOBA UNIVERSITY OF MANITOBA SOUTH DAKOTA STATE UNIVERSITY	**Cleared YES YES YES YES YES YES YES YES

10/15/10

Agricultural Research Information System
Request to Submit Manuscript for Publication

PAPIERNIK SHARON K Soil Science 9 ✓ 3645-05-00
LINDSTROM MICHAEL J General Biological Sci: 10 3601-01-00

**** Indicates approval of all Non-ARS authors of the Interpretive Summary, Technical Abstract and Affiliation to be released to the public.**

Comments:	File Type
10/15/2010 ARS-115 for peer reviewed journal article. jcs	Work

Title	Approving Official	Date	DUR	Prominent Issues	App/Disapp
Research Leader:					
LD/ID/CD Dir:					
Area Director:					
ONP NPL1:					
ONP NPL2:					
ONP NPL3:					
ONP DA:					
OTT Director:					
ARS - 115					

****UNOFFICIAL****

Interpretive Summary:

Little experimental data is available on how herbicide behavior in soil changes across small distances. Soil erosion results in a large variation in soil properties that affect herbicide fate and transport. We evaluated the retention of the commonly-used herbicides: 2,4-D and glyphosate in soils from three landform elements (eroded upper slope, deposition zone, and eroded waterway) in a strongly eroded agricultural field. For 2,4-D, herbicide retention by soil was most strongly influenced by variations in soil organic carbon concentrations. In contrast, retention of the herbicide glyphosate was predominantly controlled by variations in soil pH and clay content. The pesticide root zone model (PRZM) predicted that glyphosate would be immobile in soils even under an extreme rainfall scenario. The model predicted that 2,4-D would be much more mobile in soil. The model output was particularly sensitive to input values of herbicide retention, which depended strongly on soil properties. When values determined for the deposition zone were replaced by those measured in the eroded upper slope, the predicted amount of 2,4-D leached to a depth of 15 cm depth increased by 29,081% under an actual rainfall scenario. These results suggest that herbicide transport may be vastly different in different portions of the same field. Pesticide fate models such as PRZM are being used in policy analyses at large scales. These results indicate that to strengthen pesticide leaching predictions, data on herbicide retention in different landform elements and for different depths in soil should be included. These results will be useful to those who develop and use pesticide fate models to improve predictions of pesticide transport in eroded hilly landscapes common throughout the prairie region.

Technical Abstract:

There are few experimental data available on how herbicide sorption coefficients change across small increments within soil profiles. Soil profiles were obtained from three landform elements (eroded upper slope, deposition zone, and eroded waterway) in a strongly eroded agricultural field and segmented into 2-cm intervals. Soil samples were analyzed for soil organic carbon content (SOC), soil pH, soil carbonate content, CEC, soil texture, bulk density, 2,4-D [2,4-(dichlorophenoxy) acetic acid] or glyphosate [N-phosphonomethylglycine] sorption by soil (Kd), and 2,4-D or glyphosate sorption per unit soil organic carbon (Koc). Considering all soil profiles, 2,4-D Kd values ranged from 0.12 to 2.61 L/kg and were most strongly influenced by variations in SOC. In contrast, glyphosate Kd values ranged from 19 to 547 L/kg and were predominantly controlled by variations in soil pH and clay content. The pesticide root zone model (PRZM) predicted that glyphosate would be immobile in soils even under an extreme rainfall scenario of 384 mm at one day after herbicide application. In contrast, for 2,4-D, PRZM predicted that up to 6% of the applied herbicide would move to a depth of 15 cm under an actual rainfall scenario. PRZM output was particularly sensitive to input values of Kd, relative to input values of soil properties. The greatest change to PRZM outputs occurred when Kd values of toeslope profiles were replaced by those measured in knoll profiles, when the amount of 2,4-D leached to a depth of 15 cm increased by 29,081% (from 0.09 to 26.17 g/ha) under an actual rainfall scenario. We conclude that, when pesticide fate models such as PRZM are being used in policy analyses at larger scales, data on Kd values in different landform elements and at the soil horizon level could be important for strengthening pesticide leaching predictions.

Exhibit 2: Guidelines for Preparing Interpretive Summaries

Interpretive summaries are the only systematic means for obtaining timely and Agency-wide information about new ARS scientific findings. These statements should be well written because they serve many critical uses in the Agency including decisions about resource allocations, budget development, program planning, communications with Congress and the Executive Branch, policymakers, technology transfer, and IS activities.

An interpretive summary does more than repeat or paraphrase the manuscript. It tells the meaning or value of the research in terms understandable to the general public. The interpretive summary should contain the following information:

- **Problem**--Clear statement, in one to three sentences, of the problem that is being solved or studied and why. The statement should present the problem in a manner that the general public can understand and identify with, appreciate, or be concerned about.
- **Accomplishment**--Statement of what was accomplished, not how it was done.
- **Contribution of Accomplishment to Solving the Problem**--Statement of the nature and, where possible, the magnitude of the benefits of the accomplishment. This statement should be as specific as possible. Some accomplishments directly benefit scientists (including scientists in industry and in action and regulatory agencies) but do not directly benefit farmers and consumers. In such cases, this text should identify the accomplishment's impact on science, the area of science that will use the results, and the probable advancement of technology.

An interpretive summary is required for a completed paper that reports original scientific research. An interpretive summary is not required for a literature review, book chapter (unless reporting original research), book review, proceedings, popular or trade journal, or abstract. An approved interpretive summary of a scientific paper that will be included in the ARS TEKTRAN is available to a broad spectrum of users (including private industry and Federal action agencies and the general public via the Internet) and observers of the agency's research accomplishments. If the information does not meet these guidelines, the interpretive summary may be returned for revision.

Following is an example of an acceptable interpretive summary:

Identification of QTLS Associated with Resistance to Soybean Cyst Nematode Races 2, 3, and 5 in Soybean PI 90763: Soybean cyst nematode (SCN) causes annual yield losses estimated to be over 1 billion dollars. Use of resistant varieties and rotations of soybean with crops such as corn upon which the nematode cannot feed will minimize yield losses caused by this pest. Most of the currently grown resistant varieties have the same major genes for nematode resistance which allows the nematode to adapt to them over time. Soybean PI 90763 may provide new genes for resistance to the nematode. Molecular markers were used to identify new genes for resistance in PI 90763. Use of these markers may reduce the current tedious

methods for developing resistant varieties. This information will enable soybean breeders to develop new varieties faster so soybean producers have new weapons to combat the nematode.

Exhibit 3: Authorization for Payment of Page Charges for Scientific and Technical Journals (quoted from Department Regulations 1410-1)

Some scientific and technical journals require authors or institutions to assume part of the cost of publishing their manuscripts, or the cost of the excess over a specified number of pages, or all or part of the cost of tabular or illustrative matter. The selection of and payment to such journals shall be processed through the appropriate contracting office in accordance with applicable statutes and regulations. The authority to pay page charges carries the following instructions:

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Costs. The Government will bear only a part of the entire cost of publishing the manuscripts, so long as such part is less than the cost of publication through the GPO and the charges are equitably distributed among all contributors.

Nature of Article. The article must be a concise and an original contribution to a field of scientific knowledge within the responsibility of the agency, and tabular and illustrative material will be limited to only that which is essential.

Nature of Journal. The journal concerned must be an established scientific journal that is recognized in its field and reaches the desired audience. It must also maintain an editorial board which insures that the sharing of publication costs does not influence editorial policy and must levy its charges impartially on all manuscripts published, whether submitted by non-Government or Government authors. (See also 32 Comptroller General 487 and 3 Comptroller General 785.)

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- (3) Inapplicability of Printing Limitations. The partial costs for publication of scientific manuscripts in technical journals are construed to be printing costs, but waivers from GPO are not required.

Exhibit 4: Certification of U.S. Government Material as Public Domain Content



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